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<b>TRAINING PROGRAM FOR THE ANALYSIS OF DNA DATA BANK SAMPLES USING PCR-BASED STR FLUORESCENCE IMAGING ANALYSIS AT THE POWERPLEX® 16 BIO LOCI</b>	Issue No. 1
	Effective Date: 1-August-2003
<p><b>7 VERTICAL TYPING GEL – POWERPLEX® 16 BIO</b></p> <p><b>7.1 GOALS:</b></p> <p>7.1.1 To become familiar with the theories of electrophoresis as they apply to vertical gels used in DNA STR analysis.</p> <p>7.1.2 To learn the parameters used for electrophoresis of the PowerPlex® 16 BIO typing gel.</p> <p>7.1.3 To develop an understanding and working knowledge of the use of the typing gel, including the limitations and proper documentation.</p> <p>7.1.4 To become familiar with the controls run on the PowerPlex® 16 BIO typing gel.</p> <p><b>7.2 TASKS:</b></p> <p>7.2.1 Prepare reagents and gels necessary to perform vertical gel electrophoresis of the DNA samples. Refer to the <u>Commonwealth of Virginia Division of Forensic Science Forensic Biology Section Procedures Manual Section III, Fluorescent Detection PCR-Based STR DNA Protocol PowerPlex® 1.1, 2.1, and 16 BIO Systems Manual</u> for the procedure.</p> <p>7.2.2 Run vertical PowerPlex® 16 BIO typing gels.</p> <p>7.2.3 Read applicable literature and become familiar with glossary terms. Refer to Appendices A and B, and C for Additional Training Aids.</p> <p>7.2.4 Continue on to Chapter 8, FLUORESCENCE DETECTION - POWERPLEX® 16 BIO.</p> <p><b>7.3 TRAINING EVALUATION:</b></p> <p>7.3.1 Knowledge</p> <p>7.3.1.1 Review of notes and worksheets in training notebook by training coordinator.</p> <p>7.3.1.2 Oral and practical examinations.</p> <p>7.3.2 Skills</p> <p>7.3.2.1 The trainee should demonstrate an unquestionably sound technique for running consistently interpretable vertical PowerPlex® 16 BIO gels using proper documentation. This will be monitored by review of the documentation in the training notebook and continual observation by the training coordinator.</p> <p>7.3.3 Completion of the checklist by training coordinator.</p>	

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STUDY QUESTIONS:	
1. Which chemicals are used to cause the Page Plus type gel to polymerize?	
2. The STR loading buffer contains which dyes?	
3. Why is xylene cyanol not used in the loading dye?	
4. Why is Page Plus used instead of agarose?	
5. What controls are used on the PowerPlex® 16 BIO gel? Why are these used?	
6. Does the preparation of the glass plates affect the results? Explain.	
7. What are the components of the Page Plus gel? What is the gel concentration of the Page Plus gel that is used to analyze the PowerPlex® 16 BIO System? Why is this concentration used?	

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**CHECKLIST FOR VERTICAL TYPING GEL-POWERPLEX® 16 BIO**

1. Trainee has prepared of reagents and gels necessary to perform vertical gel electrophoresis.

Date: \_\_\_\_\_ Training Coordinator: \_\_\_\_\_

Comments: \_\_\_\_\_
2. Trainee has successfully and accurately completed all appropriate paperwork associated with the vertical typing gel.

Date: \_\_\_\_\_ Training Coordinator: \_\_\_\_\_

Comments: \_\_\_\_\_
3. Trainee has successfully run vertical type gels for samples amplified using the PowerPlex® 16 BIO System.

Date: \_\_\_\_\_ Training Coordinator: \_\_\_\_\_

Comments: \_\_\_\_\_
4. Trainee has developed an understanding of the theory and limitations of the vertical typing gel.

Date: \_\_\_\_\_ Training Coordinator: \_\_\_\_\_

Comments: \_\_\_\_\_
5. Notebook is organized and complete.

Date: \_\_\_\_\_ Training Coordinator: \_\_\_\_\_

Comments: \_\_\_\_\_
6. Trainee has read and understands all applicable literature.

Date: \_\_\_\_\_ Training Coordinator: \_\_\_\_\_

Comments: \_\_\_\_\_
7. Trainee has participated in question and answer sessions.

Date: \_\_\_\_\_ Training Coordinator: \_\_\_\_\_

Comments: \_\_\_\_\_

**◆END**